

Waterweed growth in Hickling Broad.

With a water surface of 116 ha, Hickling is the largest broad. Unlike most of the other lakes in the region, it is surrounded by scenically attractive fens which have not been extensively invaded by trees and bushes. Much of the Broad is only about 1.2 m deep, but despite this, it forms one of the most popular sites in the region, being visited by large numbers of holiday cruisers (which because of their deeper draught have to keep to the central, marked channel) as well as smaller vessels. The Hickling Broad Sailing Club, with a membership of several hundreds, holds a series of races each year, many of which attract competitors from other parts of the UK, and there is also a thriving Windsurfing Club. The Broad is very popular with anglers, being particularly famous for its pike fishing.

Hickling Broad and its surrounding fens and marshes has long been renowned for the richness and variety of its bird and plant life, and is part owned, and part leased by the Norfolk Wildlife Trust. The site was declared a national nature reserve by the Nature Conservancy (now English Nature) in 1958, and it has subsequently been afforded several international nature conservation designations (see below).

Waterweeds started to re-appear in Hickling Broad during the early 1990s following a period of about 25 years when the site was dominated by phytoplankton (minute, mainly single-celled algae), and following complaints from boating interests, some of the areas colonised by Spiked Water-milfoil - a relatively common species - were cut from 1994 onwards by staff employed by the Broads Authority (BA). During the ensuing years, the waterweed community became increasingly diverse, the appearance of several different stoneworts (Charophyta) being especially noteworthy from the nature conservation point-of-view as five of the species concerned are national rarities.

One of the principal components of the charophyte community - Intermediate Stonewort - is very tall as well as rare, and by 1998, it was growing so prolifically that even quite small boats found it difficult to make progress across the Broad away from the central, dredged channel. Following pressure from members of the Hickling Sailing Club, and from boat hire and other recreational interests, the BA made it known, following consultation with interested parties, that during the summer of 1999 it intended to cut the waterweeds growing in some 38 ha of the Broad, or about a third of its total surface area.

This proposal was objected to by English Nature (EN) on the grounds that Hickling Broad forms part of a site afforded protection under both European and UK legislation, and that....."the cutting of aquatic plants as proposed is not directly connected with, or necessary to, the management of the site for nature conservation". Faced with this objection, the BA was, as a 'Competent Authority' under the provisions of The Conservation (Natural Habitats &c)

Regulations, 1994, obliged to set up an 'Assessment Team' to advise it, inter alia, on whether its proposal to cut waterweeds would, as claimed by EN, affect the integrity of the Broads candidate Special Area for Conservation and Broadland Special Protection Area, both of which include Hickling Broad.

The Assessment Team concluded that it would not be acceptable to cut as much as 38 ha of the site, and that in order to prevent the stoneworts being uprooted, thus creating areas of bare sediment on the floor of the Broad, they should not be cut at a height of less than 40 cm above the bottom, rather than 30 cm, as proposed by the Authority. In the event, the plants started to regress during the late summer and it was decided to cease cutting on August 20. By that time, some 15 ha had been dealt with, the cutting rate averaging only 0.45 ha per day.

The Team was uncertain as to whether the carrying capacity of the Broad for overwintering herbivorous birds such as Coot, Gadwall and Shoveler would be affected by the weed-cutting programme, and therefore recommended that the bird populations of the site should be monitored during the winter of 1999/2000. The BA subsequently awarded the British Trust for Ornithology (BTO) a contract to do this. The Team also noted that ... "the (Hickling) broad ecosystem will probably continue to change towards a lower nutrient, more botanically diverse state, albeit slowly", and it forecast that the clear water conditions which had, to the delight of conservationists, developed in the Broad during the summer of 1999 were likely to be repeated in subsequent years.

Recreational interests were very unhappy about the limited size of the area cut during 1999, and it also became clear that there was widespread misunderstanding locally about the reasons why English Nature and the Norfolk Wildlife Trust (which part-owns, part-leases and manages the site as a national nature reserve), had objected to the BA's original proposals. In view of this, the Broads Society arranged a public meeting where the interests of both recreational users, and conservationists could be both explained and discussed. This meeting was held on March 20, 2000, and a full account of what was said at it is included in the April to June edition of our magazine, 'The Harnser'.

Members of the Assessment Team met again in early May 2000, by which time they were able to consider reports by both Jane Harris (on the waterweed monitoring work which she had carried out for the BA), and the BTO (on the overwintering birds). In the light of this new information, they concluded, inter alia, that the 1999 cutting programme had had no effect on water quality, or on the numbers of birds overwintering on the site. However, they noted that in the early Autumn of 1999, the water in the Broad had become turbid with phytoplankton, one of the algae concerned being *Prymnesium* (a species prone to release toxins lethal to fish) and that contrary to their earlier prediction, the water was still very cloudy. In the circumstances, they decided that no weed-cutting should take place during the summer of 2000 unless and until clear water conditions (which they carefully defined) developed. These

recommendations were broadly accepted at a specially-convened meeting of the full Broads Authority on May 16.

The reasons why the water in the Broad is currently turbid, rather than clear as it was during the summer of 1999, are not understood. It has been suggested that the site may have received increased amounts of nitrogen and phosphorus from the catchment as a consequence of the unusually heavy rainfall experienced over the past six months or so, and that because waterweeds die back during the winter months, phytoplankton, rather than stoneworts, were able to benefit from the increased supply of these plant nutrients. It is also possible that the site has become more nutrient-rich as a result of the large numbers of herbivorous birds which congregated on it during the Autumn of 1999 (nearly 3000 Coot were recorded on the Broad during September and October). But these are no more than guesses, and we in the Society believe that the principal issue to emerge from what has happened over the past few years is our lack of understanding of the reasons for the ecological changes to which this Broad is subject. In the circumstances, we welcome the Assessment Teams's recommendation that not only should the waterweed flora and bird populations of the site continue to be monitored, but that a three year limnological research programme be mounted on its fish and invertebrate populations. We also agree with the Team that a revised nutrient budget for the Broad (ie a profit and loss account of the plant nutrients which are arriving in and leaving the site) needs to be compiled as soon as possible.

Martin George, August 2000